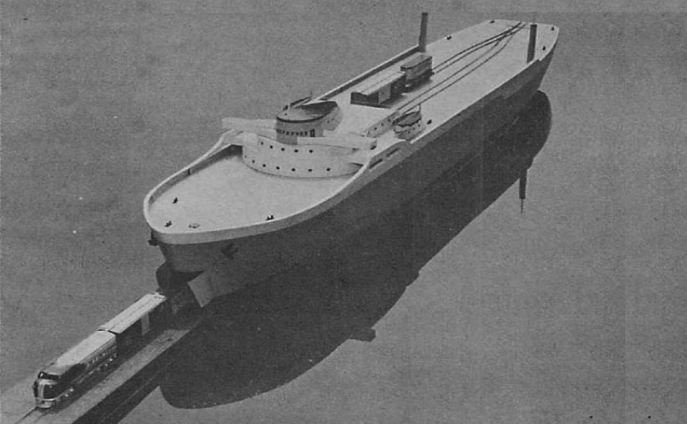


S.S. Colossus



56" Radio Control Exact Scale Train and Trailer Carrying Boat by Walter A. Musciano.

Construction wise they don't come any simpler size wise they don't come much bigger. Here is a master project to fill those late winter nights. Model railroad fans can make waterline version for layouts.

Built to the same scale as HO model trains, approximately 5/32" to the foot, this unusual ship model can provide countless hours of enjoyment for both the model boat builder and miniature railroad enthusiast. Frankly, we cannot understand how any model builder who likes models that are "off the beaten path" can possibly resist this one. This "new look" for cargo ships can be built as an operating model powered with two electric motors with radio control as optional, or as a non-operating, waterline model that would enhance the appearance of any model railroad pike.

A brief resume of this interesting type of cargo ship:

The highest single cost of operating cargo ships is not the fuel nor the crew's wages nor ship maintenance but, instead, it is the cost of handling the cargo and the time lost in port waiting for the cargo to be loaded and unloaded.

A typical example of the steps required to load a present day conventional cargo ship is as follows:

- 1) cargo is brought to the pier in trains or trailer trucks
- 2) cargo is unloaded onto dock by hand
- 3) cargo is moved to pier alongside ship
- 4) cargo is loaded into slings
- 5) cargo is lifted onto ship by ship's cargo booms into hatch opening
- 6) men in the ship's hold must move the cargo out of the hatch opening into the sides and ends to store it safely and neatly. The procedure is reversed when cargo is unloaded. This antiquated, time consuming and costly method of cargo handling increases the cost of many daily necessities which are brought to us by ship. It also increases the cost of the ship in view of all the winches, booms and hatches required for the cargo.

Ship designers in general and the firm of George G. Sharp Co. in particular constantly strive to improve cargo handling conditions. One of the best remedies to this problem is the Train ship and Trailer ship. These ships are designed to accommodate loaded freight cars or trailer vans on one, two or three decks. The Train ship has railroad tracks welded to the decks onto which the train is loaded through bow or stem doors, or both.

A Train ship can be loaded with trailers in addition to or instead of trains. On the other hand the Trailer ship is not fitted with tracks and can accommodate only trailers which can be loaded through doors in the stern or in the side of the hull. Many designs have internal ramps installed in order to enable the trailers to enter through one door and then proceed to other decks via the ramps. The tractors do not remain on board but merely park the trailer and proceed off the ship to other assignments.

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Despite the fact that some of the usable volume of the hold is occupied by the freight car or trailer thereby decreasing the amount of actual cargo, and despite the fact that rental must be paid for the vehicle, the Train ship or Trailer ship is still far more economical than the conventional cargo ship in many specific instances. Instead of spending three to five days in port this new ship takes less than a day to unload and load, thereby spending more time at sea. In this way many more round trips can be made each year. These ships are lighter and have a shallower draft and therefore are faster than the conventional cargo ship.

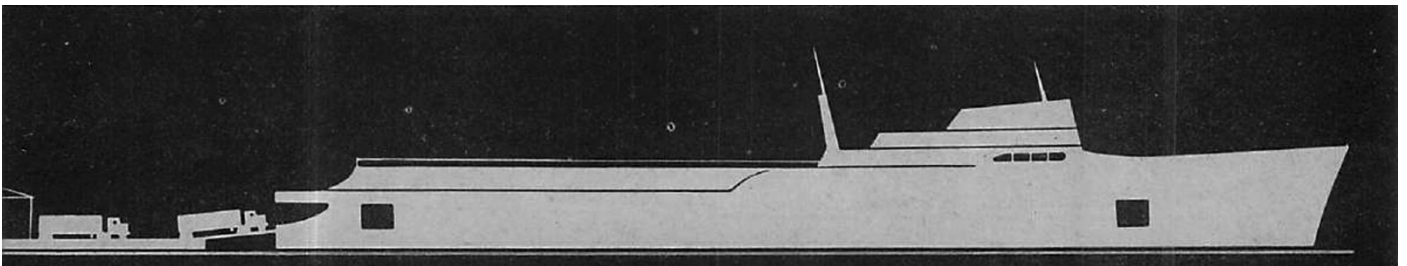
There are numerous ships operating throughout the world that carry trains including the "Seatrail New York," "City of Midland" on the Great Lakes and the "New Grand Haven" in Canada. The U. S. Maritime Administration is planning a Trailer ship and numerous shipping lines and railroads are planning to operate them. The McLean Trucking Co. also is planning a Trailer ship. Over twenty are operating on Lake Michigan alone at present with several more contemplated.

Our model represents the ultimate in this relatively new type of ship design in view of its patented inclined decks. This feature enables the trains to be loaded onto both decks without an elaborate, adjustable drawbridge on the dockside. Both stern and bow openings are the same distance above the waterline yet open onto different decks! It should be remembered that it is optional whether a trailer or train carrying ship is built. If a Train ship is selected one, two or three decks can be fitted with rails. The main deck always is used, therefore use it if only one train deck is contemplated. The other train deck to use if two decks are contemplated is the second deck. The upper deck is optional as a train deck. This is often reserved only for trailers.

The prototype model is strikingly modern and embodies features which may not be familiar to the reader. One of these is the engine room location. This is placed at the after portion of the hull, as is done on tankers, thereby shortening the propeller shafts and making room for the continuous second deck which enables more trains to be carried. The boiler gases emerge from the two masts on deck instead of what appears to be the smokestack atop the superstructure. The large streamlined "stack" actually houses the wheel house, radio room, chart room, emergency generator, etc. The author, as a member of the Design Staff of George G. Sharp Co. for over a decade has done a considerable amount of design work on Train ships.

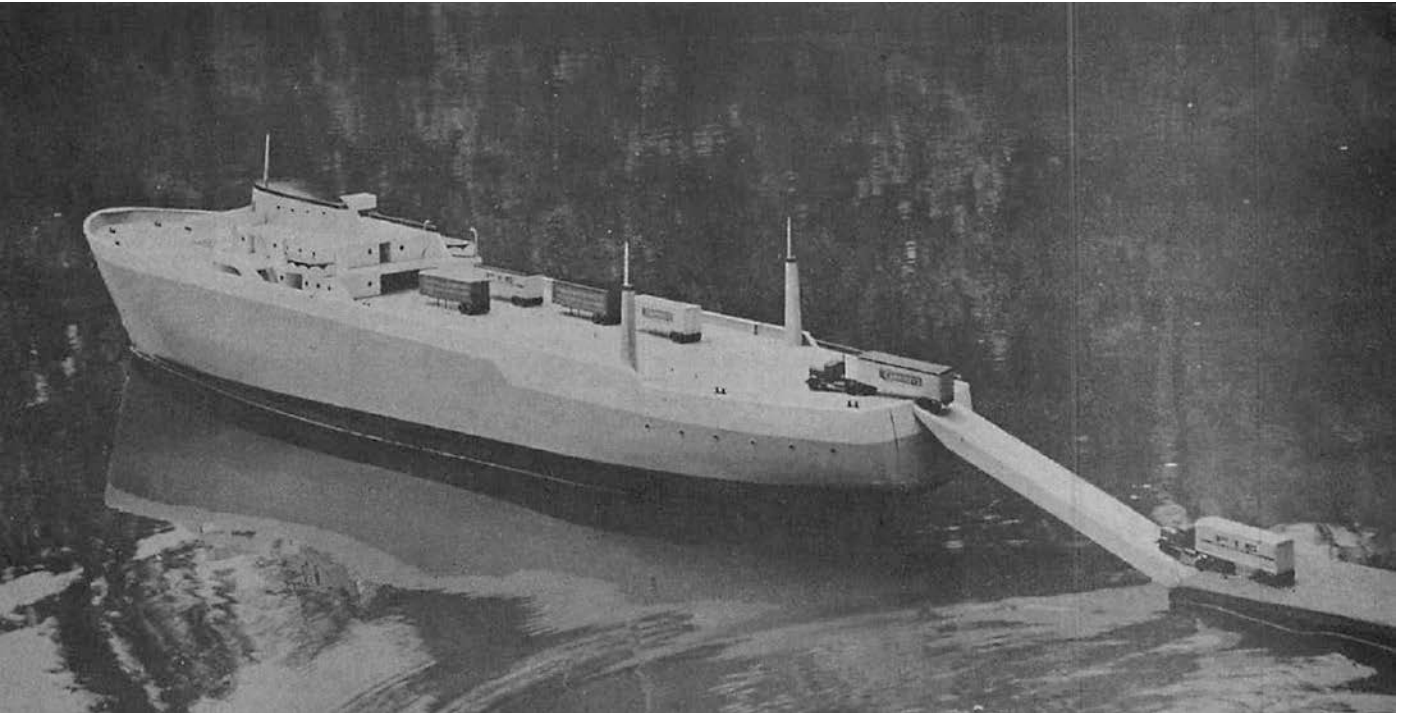
We shall assume that the reader intends to power this model as we did. The keel should be traced onto 'A' plywood and cut to shape with a coping or jig saw. Carefully drill the hole for the tiller tube. Splice as shown and cement well. This heavy plywood can be purchased at all lumber yards. Cut the frames and bulkheads to shape now. Mark off the location of the second and main decks onto the bulkheads. Cement these to the keel, using plenty of the adhesive.

The rudder is constructed from 1/16" thick sheet brass. This can be cut to shape with tin snips and filed to a streamline shape.



Profile of trailer ship below (G.G. Sharp design) illustrates profile of conventional cargo ship (right) shows how much uncluttered decks of roll on, roll off piggyback design while valuable deck space is taken up by the kingposts and booms.

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HO scale tractors and trailers above are Ulrich model vans P.L.E. names. Ulrich also has Kenworth dump truck and trans which are available in Denver Chicago Trucking Co., Garrett and for trailer in same 5/32" to foot scale. Boat funnel is dummy.

Bend the upper portion of the wire tiller and slide this into the brass tube as shown on the plans. Bend the lower portion and solder this well to the rudder. Use plenty of solder and file this smooth when cool. Cut the brass connecting rod and file smooth. Slip this onto the tiller and solder a washer in place to keep this from slipping off.

The second deck should be assembled from 1/4" hard balsa. The grain should run lengthwise on this deck, it will be necessary to butt join several sheets of 3/16" x 3" hard balsa to make up the width of this deck. Note that the second deck ends at the forward motor compartment bulkhead. Also note that this deck is notched to fit each frame. Before the second deck is cemented in place it should be sanded smooth, several coats of wood filler applied and then painted medium or light grey. Slide the deck into place and cement firmly to the plywood frames. If it is intended to use this deck for trains the tracks should be installed now before the Main Deck is added.

In view of the fact that the rails on the full size ship are welded directly to the deck no ties are required. Mark off the location of the brass rails onto the deck and fasten these in place with standard HO rail spikes. A drop of cement here and there will prevent the tracks from loosening in the future. Cement the bumpers in place. The switches are available in kit form at all hobby shops.

At this time install the wiring tunnel which extends from the motor compartment to the radio compartment. This tunnel is made from a conventional card board mailing tube. A plastic tube or similar can be used for this purpose. This tunnel allows all wiring to slide through the tube easily after the model is complete.

Before the next deck is added begin planking the hull. Decide now whether or not you intend to install a radio control set. If you do be sure to cut the hatch in the second deck as shown. In any case it is important that, as a start, three pounds of lead ballast be fitted in the radio compartment and three pounds of lead be fitted in the motor compartment as soon as the first six or eight planking strips are in place.

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Hard 1/8" x 3/8" balsa strips are used to plank the hull bottom. Begin at the very bottom of the hull at the keel. Use a slow drying cement and apply this to the keel. Place a strip onto the keel and hold in place with straight pins until dry. Now, cement one strip to each side of the strip already in place. Be sure to cement these to the bulkheads as well as to each other. Continue in this fashion until the lower portion of the hull is covered up to the point where the Main Deck is to be installed. Paint the inside of planking above the Second Deck light grey.

Before any more decks or covering are added install the basic foundations for the batteries, motors, and radio and rudder servo (if any). The plywood motor foundation should be cemented in place without the 3/8" square runners. These are added later with the motor. Using the hole in the bulkhead extension as a guide carefully pierce the hull with an awl or ice pick for the propeller shaft. Slide the brass propeller shaft tube through the hull but do not cement in place.

Now, cut the propeller shaft about one inch oversize. Force the 2" dia. propeller onto the shaft if it is Nylon and slide the shaft into the tube. Screw the motors to the runners anti attach the K&O spring type universal. Place the motors into the hull (do not cement) and connect them to the propeller shafts.

Now, arrange the motors in such a manner as to cause propellers to clear the hull side by 1/4". It will be noted that the shaft will rake downward and outward in order to achieve this propeller location. Pour plenty of cement around the motor runners and the shaft tube. When dry remove the motors and propeller shaft. Waterproof the motor compartment with at least four coats of wood filler.

Butt-joint hard sheet balsa to form the correct width and length of the Main Deck. Trace and cut this to shape. Sand smooth and seal and paint the top and bottom of the Main Deck. Cement the main deck into the hull. Be sure to cut the hatches for access to the radio and motor compartments. Fit the rails, bumpers and switches carefully in place. All rails must be spaced correctly.

The hull can now be covered up to the point of the Upper Deck location for the most part with 1/8" sheet balsa because of the relatively flat surface. The curve of the bow will require the grain to run vertically in this area. When completely covered paint the planking interior in the same manner as the other decks.

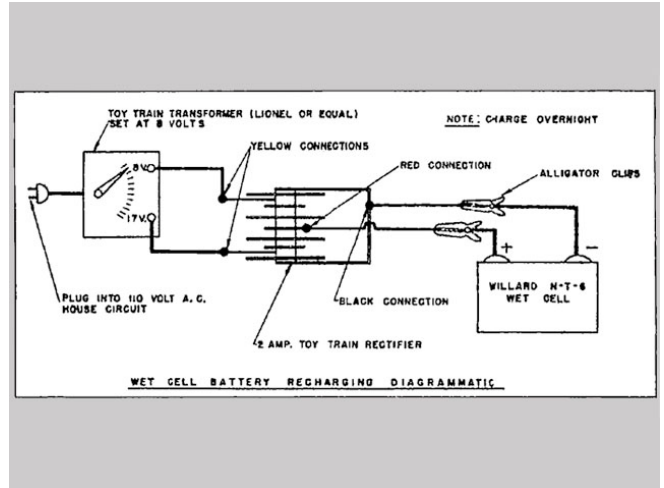
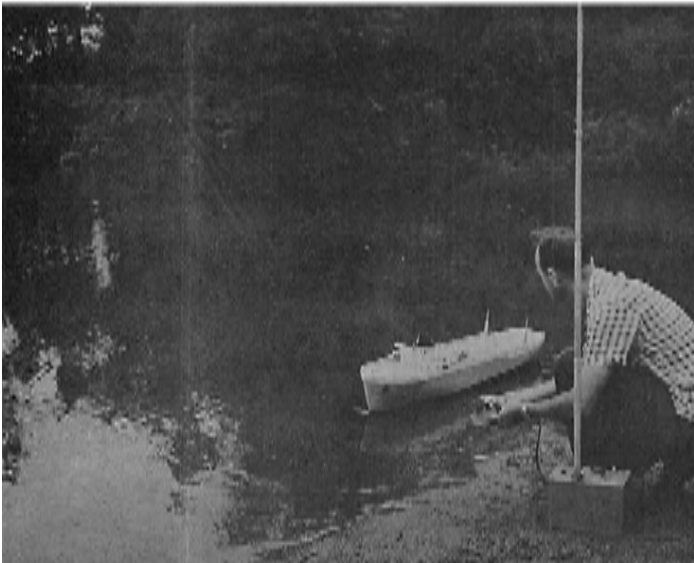
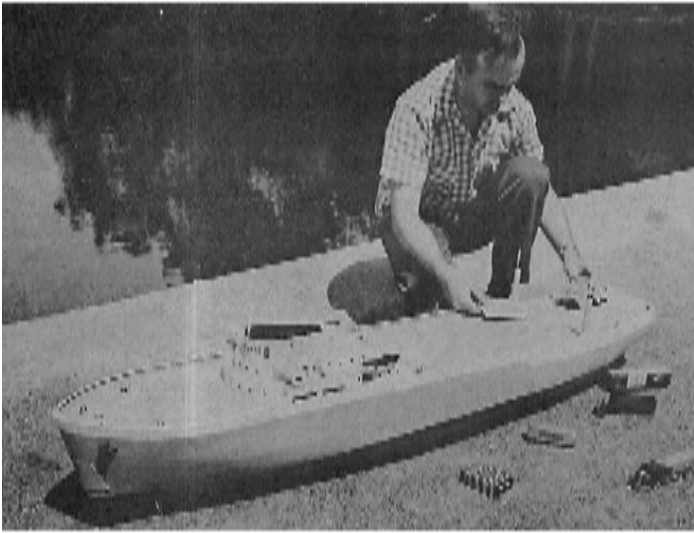
Piece the Upper Deck together and cut to shape. Seal and paint the under surface of this deck. Cement the Upper Deck in place. Cut the hatches in the Upper Deck and brush on several coats of wood grain sealer. Sand smooth with 3/0 sandpaper. The bulwark should now be installed. Note the vertical grain direction at the bow. Also note that the bulwark rises to the level of the Cabin Deck coaming in way of the superstructure. Cut the celluloid sheet bulwark flange or cap strips to shape and cement atop the bulwark. Note that this flange continues up the bulwark to the Cabin Deck.

Sandpaper the hull very thoroughly with 1/0 and 3/0 sandpaper. Inspect the hull for spaces between the planking and fill these with a balsa filler. Force this into the cracks with the fingers. When dry sand thoroughly again and we are now ready to prepare the hull for painting.

A good finish is mandatory for an operating model ship. Not only does a good finish enhance the appearance, but it means a watertight hull. The grain must be filled before the paint is applied. Begin by brushing on three consecutive coats of a sealer. When thoroughly dry sandpaper the hull thoroughly with 3/0 sandpaper. Brush on two more consecutive coats. These applications should be flowed on very liberally. Sand again when dry. Thin the filler about ten percent and continue applications with intermittent sanding until the exterior is smooth as glass. This may take from ten to fifteen coats in order to do a good job. Final sanding should be with 8/0 or finer wet sandpaper.

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This particular boat was designed by Mr. Musciano in response to numerous requests for a very large, very simple scale model for remote control by radio. Note that an alternate location for the receiver is in ship superstructure.



Full-size plans for S.S. Colossus are available as Group Plan #56 obtainable from Hobby Helpers, 770 Hunts Point Ave., N.Y. City 59 (75c)

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If desired the trailer ports can be cut into the side of the hull as shown. These are optional. The bow clamshell doors are cut from sheet brass in two pieces while the stern door is cut from sheet brass in one piece. All doors are hinged with strips of cloth or piano hinges.

We now begin construction of the superstructure and radio equipment installation.

It is necessary to butt join several pieces of hard 1/8" sheet to form a large area for the Cabin Deck and Navigating Deck. Trace the outline of these decks onto the balsa and cut to shape. Note that the grain runs beam wise. Cut the sides and rear of the cabin deck and cement these in place to the deck. Hold in place with straight pins until dry. Note that the rear pieces of the deck house is vertical despite the inclined edge of the rear of the sides. In order to bend the front of the cabin deck it will be necessary for the grain to run vertically. Here again it is necessary to piece the sheet balsa together before it is cemented in place. Wet the balsa if it will not bend easily. Hold in place with pins until the cement is dry. Sand this deck smooth and brush on a balsa filler until very smooth. Sand well between coats. Make the holes in the sides for the grommets or eyelets.

Construction procedure for the Navigating Deck is identical to that of the Cabin Deck.

The streamline stack can be carved from a solid balsa block or it can be laminated together from scrap sheet left over from the decks and hull covering. Trace the base of the stack onto the wood and saw to shape with a coping saw. Now, trace the side view and cut to shape. Trace the top of the stack onto this. Carve the stack to a streamline shape. Sand smooth and brush on several coats of wood grain sealer. Sand between coats. Cut the flying bridge from 1/8" sheet balsa and cement to the stack. When dry cement the celluloid coaming around the bridge. Hold in place with pins until dry. Make holes for the grommets in the stack.

Mark off the location of the Navigating Deck onto the Cabin Deck. Apply cement and attach the two decks together. Now, mark off the stack location onto the Navigating Deck and cement the stack in place. Check the hull and superstructure to see if any additional balsa sealer is required. Sand well with very smooth finishing paper. At this time the superstructure bulwarks can be cut from sheet celluloid and cemented in place. The model is now ready to be painted.

The light colors should be applied first, followed by those progressively darker. Study the Outboard Profile which identifies the principal color areas. Begin by flowing on the white dope with a flat soft camel hair brush about 1/2" wide. It will not be necessary to take exceptional care to avoid overlapping those areas which are to be colored grey later. Three coats should be sufficient to cover adequately. Do not hesitate to apply additional coats if required or desired. When this is thoroughly dry apply paper masking tape along the color line separating the white from the grey. Press this firmly to the model with the fingers. Flow at least four coats of light grey dope onto the hull sides, upper deck and superstructure decks. When dry, mask off the grey on the hull carefully to form a straight line and apply five coats of medium green to the hull bottom. Remove the tape and, using new pieces, mask off the red area at the waterline. This is called the "boot top." Paint this red now.

Before any other external details are added, install the electric motors, batteries, and radio equipment. Screw the motors to the motor runners and connect the electrical power circuit. The Pittman "Panther" motors have built-in switches with a reverse position. We took advantage of this feature and suggest that you do the same. Slide the propeller shaft into the stern tube and connect it to the motor via a commercial type universal joint. A heavy duty K&O spring type universal can be used. Solder the spring to both end lugs before installation.

There is plenty of room in the hull or under the superstructure for any radio receiver. The batteries should be rigidly fixed in place low in the hull in sheet balsa boxes or in commercial battery holders. Mount the receiver in a sheet

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balsa box lined with foam rubber or suspend it with strands of rubber to prevent vibration from affecting the operation.

It is recommended that the rudder be actuated by means of a positive action proportional type of servo mechanism. This can be installed now. The prototype model was fitted with an E. D. Proportional Motor driven Rudder Servo Unit. This we found to respond well. A Rip Max "Beep Box" was used with this servo.

Install the propulsion, radio and servo wiring at this time. Use various colors for the hookup for easy identification. Use the wiring tunnel for any wires that must run between the radio and motor compartments, solder all wiring connections.

Install miscellaneous deck details. The bits can be purchased in cast metal form at most hobby shops, also the anchors. Paint these items black and cement in place.

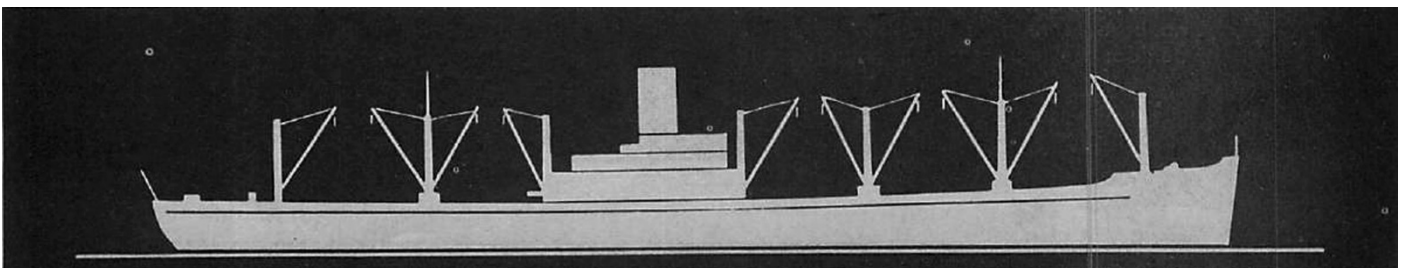
Lifeboats are carved from a balsa block or they can be laminated with 1/8" or 3/16" sheet balsa left over from the hull construction. Carve these in the same manner as the stack. Sand smooth and seal the wood grain. Paint the lifeboats white. Mask off the top of each boat and paint it black, dark grey or green to simulate the canvas covering. Bend the davits from clothes hanger wire. Force these into the cabin deck and suspend the boats from them with thread.

The two slender smokestacks are cut to shape from scrap block balsa left over from the stack construction. Sand these to an oval cross section and apply grain sealer until smooth. Cut the stack masts to a fine taper as shown and force into the stack top. Cement well. The stacks are colored grey with a black top. Masts are white. Cement the stacks to the upper deck against the bulwark.

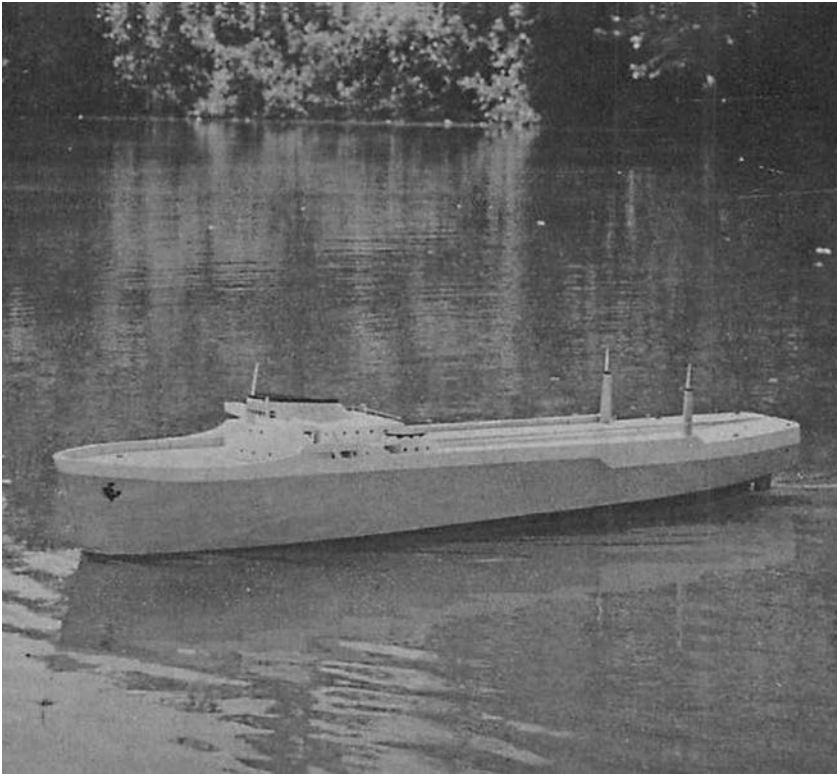
Install the H-O rails onto the upper deck in the same manner as was done for the other decks. The rails can be wiped with black dope to give them that realistic dirty appearance instead of that artificial brass look. Do not paint the very top of the rail.

Stack color bands or insignia can be added now to suit the builder's fancy. A name can also be added onto the bow if desired.

This completes our project. It is advisable to operate the model at the scale waterline. It will be necessary to add lead ballast into the radio and motor compartments to make the model ride at the scale waterline. This ballast must be firmly cemented or otherwise fastened to the hull to prevent it from shifting. The unloaded model should have the waterline at the color line separating the red and green portions of the hull.



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List of Material

1 $\frac{1}{4}$ " x 12" x 18" plywood, keel. 8 $\frac{1}{8}$ " x 6" x 12" plywood, frames, bulkheads, battery and motor platforms. 9 $\frac{1}{8}$ " x 3" x 36" balsa (hard), hull covering, superstructure. 16 $\frac{3}{16}$ " x 3" x 36" balsa (hard), decks. 36 $\frac{1}{8}$ " x $\frac{3}{8}$ " x 36" balsa (med.), hull planking. 1 .012" x 12" x 6" celluloid, bulwark rail, superstructure coaming. 1 2" x 3" x 18" balsa (soft), lifeboats, stack. 1 $\frac{1}{16}$ " dia. x 36" music wire, tiller, track switch lever. 1 $\frac{1}{16}$ " x 2" x 10" brass, rudder and tiller connecting rod.

Miscellaneous: Two pints balsa wood sealer, one tube balsawood filler, 12 ounces light grey dope, 8 ounces bright green dope, 4 ounces white dope, 8 ounces dope thinner, 2 ounces bright red dope, 2 ounces black dope, anchors, bits, pins, cement, HO rails, HO switches, HO spikes, 2" dia. Nylon propellers, $\frac{1}{8}$ " dia. brass rod, $\frac{1}{8}$ " I.D. brass tube, cast metal ladders $\frac{3}{8}$ " wide, Pittman Panther 9002 electric motors with gears, universal joints, clothes hanger wire, $\frac{3}{16}$ " dia. brass eyelets.